

## Financial Math

Income Tax  
 CPP-at age 18  
 EI  
 vacation pay  
 10.30/ hour  
 11.00/ hour at age 18  
 education and health care- paid by income tax  
 servers wage- make less because of tips  
 how to make money make money?  
 -Interest  
 -stocks- mutual fund  
 -bonds-4% for a set term Ontario Federation  
 -RESP  
 -debit account .004%  
 savings account 1.4 %  
 TFSA's-\$5000 -no interest no penalty

Dec 18-8:16 AM

## Simple Interest

-calculated on amount  
 invested ONLY

$$I = Prt \quad \text{Where;}$$

**I = the interest earned**

**P = principal invested**

**r = annual interest rate**

**t = time in years**

Jan 10-9:42 AM

## GICS guaranteed investment certificates

Logan has \$4000 to invest in a GIC which pays 3.5%/a over 5 years.  
 Calculate the interest she will earn.

$$I = ? \quad I = Prt$$

$$P = 4000$$

$$r = 0.035$$

$$t = 5$$

Substitute

$$I = (4000)(0.035)(5)$$

$$= \$700.00$$

Logan has earned \$700 in interest over the 5 years.

$$A = P + I$$

$$= 4000 + 700$$

$$= 4700$$

A = annuity (investment)

Jan 10-10:12 AM

## GICS

guaranteed investment certificates

Hannah has \$4000 to invest in a GICs paid 3.5%/a over 5 years, compounded annually

$$A = P(1+i)^n$$

A = annuity ?  
 P = principal 4000 invested  
 i = interest rate 0.035  
 n = number of times compounded 5

$$= (4000)(1+0.035)^5$$

$$= 4000(1.035)^5$$

$$= 4000(1.1876)$$

$$= 4750.75$$

The interest earned is \$750.75. Compound vs Simple  
 Interest earns \$50.75 more over the 5 years

Jan 10-10:12 AM

p459-461

#26, 4, 7, 9, 11

p468-470 2, 4, 3, 10

p476-478 2, 6, 8, 11, 12

Jan 10-10:46 AM

A donor gives \$50 000 to the high school he graduated from. The amount must be invested for 3 years, and the accumulated interest will be used to buy books for the library. If the money earns 7.75%/a compounded monthly, how much will be available to buy books?

$$A = P(1+i)^n$$

May 11-8:00 AM

Compounding Periods

Daily = 365

Monthly = 12

Annually = 1

Weekly = 52

Bi-weekly = 26

Semi-annually = 2

Quarterly = 4

Jan 10-10:43 AM

Opener

A donor gives \$50 000 to the high school he graduated from. The amount must be invested for 3 years, and the accumulated interest will be used to buy books for the library. If the money earns 7.75%/a compounded monthly, how much will be available to buy books?

$$A = P_0(1+i)^n$$

$A = ?$

$P_0 = 50\,000$

$i = 0.0775/12 = 0.00646$

$n = 3 \times 12 = 36$

$$A = 50\,000(1.00646)^{36}$$

$$A = 50\,000(1.261)$$

$$A = 63\,044.14$$

There is \$63 044.14 to buy books at the end of 3 years.

May 11-8:00 AM

$$A = P(1+i)^n$$

$A$  = Annuity  
 $P$  = Principle  
 $i$  = Interest rate  
 $n$  = # of compounding times

Solve for the value of  $P$

$$P = \frac{A}{(1+i)^n}$$

Present Value of an investment to yield a certain amount of money

May 11-8:03 AM

Ex 3 p 474

Tony has \$3000 in his savings account. He intends to buy a laptop computer and printer and invest the remainder for 2 years, compounding monthly at an annual interest rate of 3%. He wants to have \$2000 in his account 2 years from now. How much can he afford to spend on the laptop?

May 11-8:07 AM

Ex 3 p 474

Tony has \$3000 in his savings account. He intends to buy a laptop computer and printer and invest the remainder for 2 years, compounding monthly at an annual interest rate of 3%. He wants to have \$2000 in his account 2 years from now. How much can he afford to spend on the laptop?

May 11-8:07 AM

$$P = \frac{A}{(1+i)^n}$$

$A = \$2000$   
 $P = ?$   
 $i = 0.03/12 = 0.0025$   
 $n = 2 \times 12 = 24$

$$P = \frac{2000}{(1+0.0025)^{24}}$$

$$P = \frac{2000}{(1.0025)^{24}}$$

$$P = \frac{2000}{1.06175...}$$

$$P = 1883.67$$

$$\$3000 - 1883.67 = 1116.33$$

He can afford to spend \$1116.33 on a laptop and printer.

May 11-10:03 AM

Cody invests \$5000.00  
in an account at 5%/a  
compounded monthly. What  
is the investment worth  
after 6 years?

$$A = P(1+r)^n \quad A = ?$$

$$\begin{aligned} P &= \$5000 \\ r &= 0.05/12 \\ &= 0.004167 \\ n &= 6 \times 12 = 72 \\ A &= 5000(1.004167)^{72} \\ A &= 5000(1.3425) \\ A &= 6712.92 \end{aligned}$$

Jan 10-10:35 AM

p 477 q 6-13

14 diagram p 478 reading formulas

May 11-8:10 AM